



# Minnesota Ag News – Chemical Use

## Spring Wheat: Fall 2015



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Cooperating with the Minnesota Department of Agriculture

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The 2015 Agricultural Chemical Use Survey of spring wheat producers collected data about fertilizer and pesticide use as well as pest management practices in growing spring wheat.

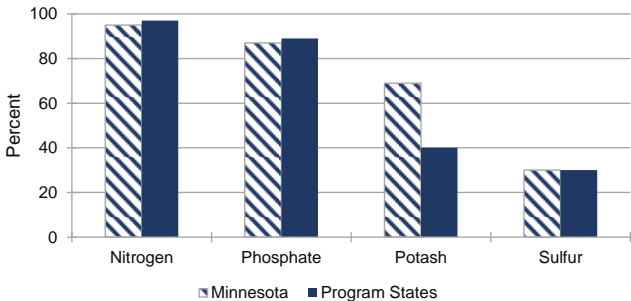
### Fertilizer Use

Fertilizer refers to a soil-enriching input that contains one or more plant nutrients, primarily nitrogen (N), phosphate (P<sub>2</sub>O<sub>5</sub>), and potash (K<sub>2</sub>O). Of the three primary macronutrients, nitrogen was the most widely used on spring wheat planted in Minnesota according to the latest USDA, National Agricultural Statistics Service – *Agricultural Chemical Use* report. Farmers applied nitrogen to 95 percent of planted acres at an average rate of 105 pounds per acre per year. Macronutrients phosphate and potash were applied to the majority of acres, at an average rate of 38 and 34 pounds per acre per year, respectively. The secondary macronutrient, sulfur, was applied to 30 percent of acres planted to spring wheat.

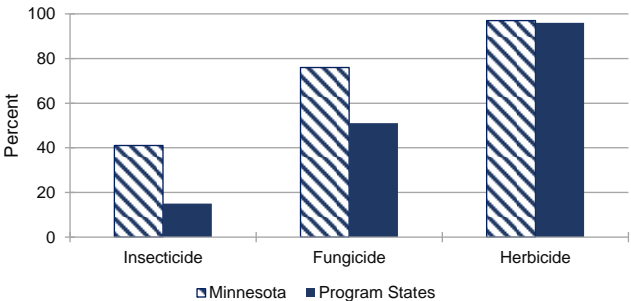
### Pesticide Use

The pesticide active ingredients used on spring wheat are classified in this report as herbicides (targeting weeds), insecticides (targeting insects), fungicides (targeting fungal disease) and other chemicals (targeting all other pests and other materials, including extraneous crop foliage). Herbicide active ingredients were applied to 97 percent of the spring wheat acres planted. Tebuconazole was the most widely used pesticide overall, and MCPA, 2-ethylhexyl was the active ingredient with the greatest total amount. Fungicide and insecticide active ingredients were applied to 76 percent and 41 percent of spring wheat acres planted, respectively.

Fertilizers: Percent of Spring Wheat  
Planted Acres Treated - Minnesota



Pesticides: Percent of Spring Wheat  
Planted Acres Treated - Minnesota



	Minnesota			Program States <sup>1</sup>		
	Planted acres treated (%)	Rate applied per year (pounds per acre)	Total pounds applied (1,000 pounds)	Planted acres treated (%)	Rate applied per year (pounds per acre)	Total pounds applied (1,000 pounds)
Fertilizer Use on Spring Wheat						
Nitrogen	95	105	147,200	97	90	1,056,400
Phosphate	87	38	49,000	89	37	392,800
Potash	69	34	34,500	40	22	104,000
Sulfur	30	10	4,600	30	8	29,300
Pesticide Use on Spring Wheat by Active Ingredient						
FUNGICIDE:						
Propiconazole	48	0.076	54	33	0.079	311
Prothioconazole	46	0.098	67	16	0.100	189
Pyraclostrobin	14	0.099	20	6	0.083	58
Tebuconazole	62	0.105	96	24	0.112	322
TOTAL FUNGICIDE	76		241	51		951
HERBICIDE:						
2,4-D, Dimeth. Salt	5	0.469	33	4	0.408	195
Bromoxynil Heptan.	39	0.114	66	24	0.106	304
Bromoxynil Octanoate	56	0.146	121	35	0.157	669
Fenoxaprop-P-Ethyl	5	0.062	4	4	0.059	25
Flucarbazone-Sodium	8	0.020	2	10	0.017	20
Fluroxypyr 1-MHE	18	0.112	30	43	0.095	494
Glyphosate Pot. Salt	10	0.951	136	27	1.032	3,329
MCPA, 2-Ethylhexyl	36	0.346	185	18	0.337	740
Methanone	35	0.030	16	22	0.031	81
Pinoxaden	12	0.050	9	15	0.050	89
Thiencarbazone-Methyl	12	0.004	1	8	0.004	4
Thifensulfuron	10	0.009	1	17	0.013	27
Tribenuron-Methyl	10	0.006	1	13	0.006	10
TOTAL HERBICIDE	97		676	96		8,772
INSECTICIDE:						
Lambda-Cyhalothrin	37	0.031	17	9	0.028	31
TOTAL INSECTICIDE	41		47	15		232

<sup>1</sup> The 4 program states surveyed about spring wheat in the 2015 ARMS were Minnesota, Montana, North Dakota and South Dakota.

**Pest Management Practices:** Rotating crops during the past 3 years was the top pest management practice for the spring wheat acreage in Minnesota.

Pest Management Practices	Minnesota		Program States <sup>1</sup>	
	% of area planted	% of operations	% of area planted	% of operations
<b>Avoidance</b>				
Crop or plant variety chosen for specific pest resistance	56	49	49	43
Planting locations planned to avoid cross infestation of pests	33	29	24	22
Planting or harvesting dates adjusted	19	19	21	20
Rotated crops during past 3 years	96	97	86	90
Row spacing, plant density, or row directions adjusted	15	19	15	16
<b>Monitoring</b>				
Diagnostic laboratory services used for pest detection via soil or plant tissue analysis	10	11	9	7
Field mapping data used to assist decisions	48	43	18	16
Scouted -				
-established process used	55	48	17	17
-for pests due to a pest advisory warning	30	21	10	8
-for pests due to a pest development model	23	17	9	8
-for pests or beneficial organisms-not scouted	6	12	2	5
-for pests or beneficial organism by conducting gen. observations while performing routine tasks	8	9	19	21
-for pests or beneficial organism by deliberately going to the crop acres or growing areas	86	79	79	75
Scouted for diseases	91	84	89	83
-by employee	3	3	1	1
-by farm supply company or chemical dealer	18	26	6	8
-by independent crop consultant or commercial scout	24	17	14	15
-by operator, partner, or family member	55	54	79	77
Scouted for insects & mites	91	84	84	80
-by employee	3	3	1	1
-by farm supply company or chemical dealer	21	28	6	8
-by independent crop consultant or commercial scout	24	17	14	15
-by operator, partner, or family member	52	52	79	76
Scouted for weeds	94	88	97	94
-by employee	3	3	1	1
-by farm supply company or chemical dealer	20	27	6	7
-by independent crop consultant or commercial scout	23	16	13	13
-by operator, partner, employee, or family member	55	54	80	79
Weather data used to assist decisions	66	55	70	63
Written or electronic records kept to track pest activity	64	59	44	40
<b>Prevention</b>				
Beneficial insect or vertebrate habitat maintained	5	6	12	11
Crop residues removed or burned down	10	8	11	12
Equipment & implements cleaned after field work to reduce spread of pests	70	71	64	62
Field edges, ditches, or fence lines were chopped, sprayed, mowed, plowed, or burned	68	60	58	55
Field left fallow previous year to manage insects	3	2	5	4
Flamer used to kill weeds	0	0	(Z)	(Z)
No-till or minimum till used	72	70	80	75
Plowed down crop residue using conventional tillage	46	47	20	23
Seed treated for insect or disease control after purchase	62	46	59	52
Water management practices used	2	2	4	5
<b>Suppression</b>				
Beneficial organisms applied or released	0	0	1	1
Biological pesticides applied	4	2	2	2
Buffer strips or border rows maintained to isolate organic from non-organic crops	6	8	6	6
Floral lures, attractants, repellants, pheromone traps, or biological pest controls used	0	0	(Z)	1
Ground covers, mulches, or other physical barriers maintained	62	61	68	68
Pesticides with different mechanisms of actions to keep pest from becoming resistant to pesticides	39	37	47	42
Scouting data compared to published information to assist decisions	37	32	22	19
Trap crop grown to manage insects	0	0	0	0

(Z) Less than half the rounding unit.  
<sup>1</sup> The 4 program states surveyed about spring wheat in the 2015 ARMS were Minnesota, Montana, North Dakota and South Dakota.